M E M O R A N D U M

TO: Concord Long Range Planning Committee, Land Use Subcommittee

FROM: Rick Taintor

DATE: August 29, 2003

RE: Zoning Bylaw Review – Mansionization

As requested, I have been reviewing Concord's Zoning Bylaw in order to identify potential improvements to help the town address current land use issues. Based on my meeting with Marcia Rasmussen, I understand that the priority issues to be considered include the following:

1. Mansionization
2. Managed increases in residential density
3. Zoning for village-scale development
4. Agricultural zoning
5. Cluster development
6. Industrial development

This memorandum presents my findings and recommendations relating to the first issue, i.e., mansionization or "monster homes." I will address the additional issues in subsequent memoranda.

Mansionization

The term "mansionization" is used to describe the significant increase in scale of single-family residences, particularly in comparison to the surrounding neighborhood. Residents are concerned about this process because of its impacts on the character of the neighborhood and community.

The impact of mansionization is compounded when the new, larger home replaces a smaller pre-existing through the "teardown" process. This process is initiated when the values of vacant buildable lots in the town become comparable to the values of existing homes, so that it is economical to buy and demolish older homes.

There are many possible strategies for addressing the problem of teardowns and mansionization. The choice depends in part on the aspect of the issue that is of most importance to the town: control of building density, preservation of open space, or visual impacts.

The following sections present overviews of various strategies for addressing the mansionization issue. In each case, examples of the application of the strategies are provided. These are presented for illustration, and are not intended to represent recommendations for specific ratios, limitations, etc.

1. Control Density – Floor Area Ratio

The strongest and most straightforward tool for controlling density is the floor area ratio (FAR), which relates maximum floor area to lot area. The FAR has been most commonly used for commercial development, and is currently used in Concord only in the Limited Industrial Park district. Residential uses in the LIP district are limited to 3,000 square feet of floor area per acre of lot area, representing a FAR of approximately 0.07 (3,000 ÷ 43,560 = 0.0689).

Several Massachusetts towns have adopted FARs for single residential use in order to address the mansionization issue, and these provisions have been approved by the Attorney General's office. This approach does not restrict the interior area of dwellings (which would violate a provision of the state's Zoning Act), but requires that such area be reasonably related to the size of the lot.

In Concord, floor area ratios could be implemented on a sliding scale based on the minimum required lot area in the zoning district. Higher FARs could be established for the zoning districts with smaller lot areas, particularly in the Residence C district which encompasses the town's older and denser neighborhoods surrounding the town centers. FARs in the outlying districts could be lower and still permit larger homes on larger lots.

As an example of this approach, the city of Newton adopted FARs ranging from 0.20 in the least dense single residence districts (25,000 sq. ft. minimum lot area), to 0.35 in the most dense single residence districts (10,000 sq. ft. minimum lot area), and 0.40 in the multifamily residence districts.

The following table presents a hypothetical application of the FAR approach, indicating the impact on the maximum floor area in each district:

Table 1: Floor Area Ratio

District	Minimum Lot Area	Floor Area Ratio (example)	Maximum Floor Area with Minimum Lot
Residence AA	80,000 sq. ft.	0.05	4,000 sq. ft
Residence A	40,000 sq. ft.	0.10	4,000 sq. ft.
Residence B	20,000 sq. ft.	0.15	3,000 sq. ft.
Residence C	10,000 sq. ft.	0.20	2,000 sq. ft.

In order to implement this approach, the town would first need to determine the appropriate maximum floor area for each zoning district. The town might determine that it is only necessary to implement FARs in the districts with the smallest minimum lot areas, or to set different FARs for different neighborhoods that are currently subject to the same zoning regulations.

A shortcoming of the FAR approach is that it does not prevent mansionization on oversized lots or through the consolidation of smaller lots into larger ones, which could involve the demolition of multiple smaller homes to build one larger one. For example, under the FAR requirements suggested in the table above, combining two conforming lots would enable the construction of a 4,000 sq. ft. dwelling in the Residence C district, a 6,000 sq. ft. dwelling in the Residence B district, or an 8,000 sq. ft. dwelling in the Residence A or AA district.

It would be possible to address this shortcoming by implementing a sliding scale FAR within a zoning district. For example, in the Residence C district the FAR might be set at 0.20 for the minimum 10,000 sq. ft. lot, reduced by 0.005 for every 1,000 square feet increase in lot area, ending at an FAR of 0.15 for lots 20,000 sq. ft. or more in area. The result of such an approach is shown in the following table.

Table 2: Sliding FAR Scale Based on Lot Area

Lot Area	FAR	Maximum Floor Area
10,000	.200	2,000
11,000	.195	2,145
12,000	.190	2,280
15,000	.175	2,625
20,000	.150	3,000
25,000	.150	3,750
30,000	.150	4,500

2. Control Density – Building Coverage Ratio

A second approach for relating building floor area to lot area is to set limits on the building coverage or "footprint." Currently, the town sets maximum lot coverage ratios for business and industrial districts (ranging from 20% to 40%), but not for residential districts. (In several districts, "lot coverage" includes paved areas as well as the area covered by principal and accessory structures.)

A maximum lot coverage ratio multiplied by the maximum allowed building height results in an effective floor area ratio. For example, the maximum permitted height is 35 feet in all of Concord's residence districts, which would accommodate a three-story house (the effect on floor area of half-stories is not taken into account in this overview). If the maximum lot coverage were set at 5 percent of lot area, the effective floor area ratio would be 0.15 (3 stories x 5% = 15%).

The following table presents examples of how the building coverage ratio might be applied in Concord's residential districts.

Table 3: Lot Coverage Limitation

District	Minimum Lot Area	Coverage Limitation (example)	Resulting Maximum Floor Area with Minimum Lot Area and Three-Story Structure
Residence AA	80,000 sq. ft.	3%	7,200 sq. ft
Residence A	40,000 sq. ft.	4%	4,800 sq. ft.
Residence B	20,000 sq. ft.	5%	3,000 sq. ft.
Residence C	10,000 sq. ft.	7%	2,100 sq. ft.

This method has the same shortcoming as the previous one: it does not address the potential problem of consolidating lots, tearing down existing smaller homes, and replacing them with a much larger home.

In addition, using lot coverage and building height in this manner is more confining than the floor area ratio method, because it forces homeowners to build to the maximum height in order to attain the maximum allowed floor area. The result might be an increase in buildings that are taller than their neighbors, where a more flexible approach could allow the same total floor area in a lower building.

3. Control Density – Increase Building Setbacks (Yards)

Yet a third strategy for controlling density would be to increase the required front, side, and/or rear yards. Concord's existing yard requirements are 15 feet for side yards, 30 feet for rear yards (except where the depth of the lot is less than 120 feet), and either 40 or 20 feet for front yards, depending on the zoning district.

Table 4 lists the minimum lot area, frontage, and yard requirements for Concord's zoning districts, and shows the total yard areas that result from the application of these requirements to parcels meeting the minimum area and frontage requirements. The required yards represent between 30 and 63 percent of the total lot area, but allow buildings to be constructed within envelopes ranging from 3,750 square feet on a minimum sized lot in the Residence C district to 56,100 square feet in the Residence AA district. Even if only half of this available envelope were used for the principal structure, a three-story residence could have up to 5,625 square feet of floor area on a 10,000 square foot lot in the Residence C district, and up to 84,150 square feet in the Residence AA district. Thus, for conforming lots, the existing yard regulations have essentially no effect on the size of the structure that can be built on the lot, although they may control the size of homes on substandard lots.

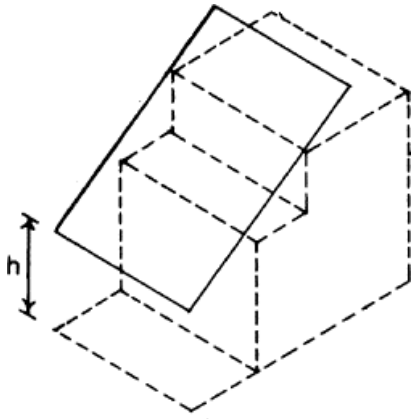
Table 4: Current Yard Requirements and Building Envelope

District	Lot Area	Frontage	Yards: Front/Side/Rear	Total Yard Area	Yard Area %	Envelope
Res. AA	80,000	200	40/15/30	23,900	30%	56,100
Res. A	40,000	150	40/15/30	16,400	41%	23,600
Res. B	20,000	125	20/15/30	9,550	48%	10,450
Res. C	10,000	80	20/15/30	6,250	63%	3,750

It would be possible to increase required building setbacks in order to reduce the building envelope and thus the maximum square footage of structures on the lot. However, this would result in an overly restrictive development framework compared to the more direct approaches of using floor area ratios or lot coverage ratios, and for that reason it is not recommended.

4. Control Bulk – Relate Maximum Height to Setback from Lot Lines

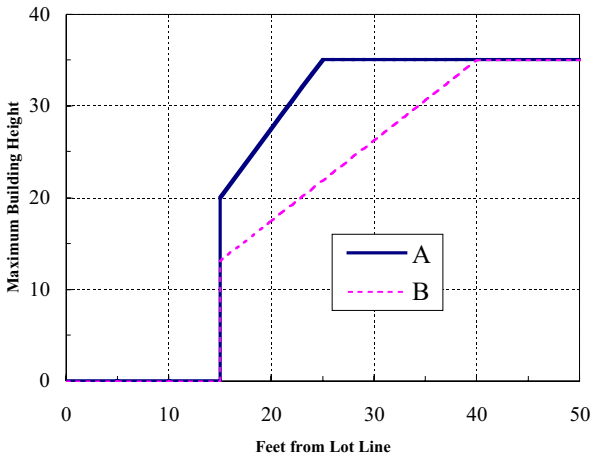
Although side setbacks should not be used as the primary way to control the intensity of residential development, the impact of a structure on neighboring lots can be managed by relating maximum building height to setback from lot lines. One technique is the "sky exposure plane" or "bulk control plane," which is defined a theoretical plane beginning at a specified horizontal location (lot line, street line, setback line) and at a specified height, and having a specified slope from the vertical or horizontal. This concept is illustrated in the following sketch:



For example, the Residence C district has a minimum lot width of 100 feet, a side yard requirement of 15 feet, and a maximum building height allowance of 35 feet. If the town determines that the maximum building height should be limited to the middle half of the lot (i.e., within the 50-foot area beginning at 25 feet from each lot line), and the maximum height at the required yard line should be 20 feet, then the bulk control plane angle would be approximately 56 degrees from horizontal.

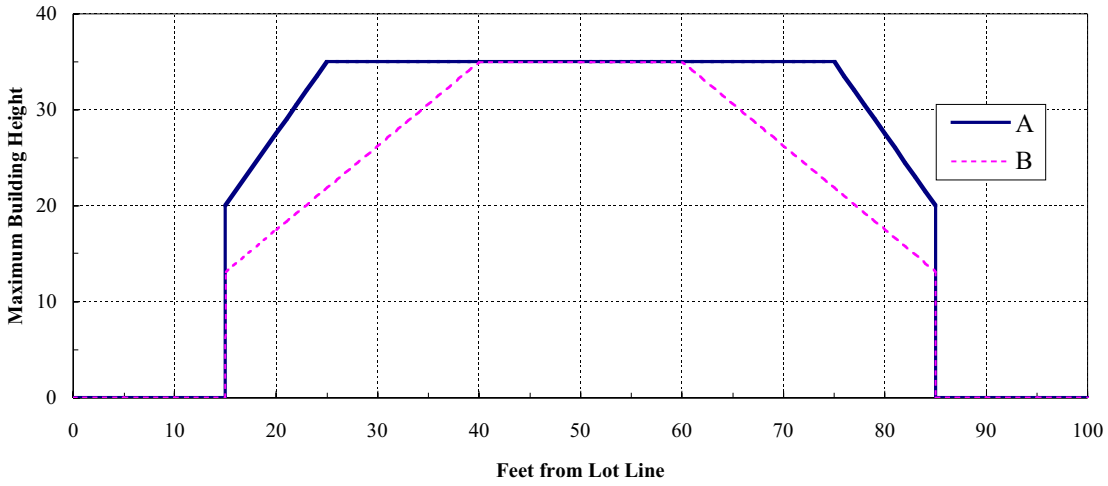
The following chart illustrates this scenario (heavy dashed line "A"), as well as an alternative scenario ("B") based on lower building height at the setback line and greater setback required to reach the maximum height of 35 feet.

Figure 1: Building Height Based on Setback from Lot Line



The following chart illustrates the building height envelope for a parcel with a width of 100 feet.

Figure 2: Building Height Envelope Based on Setback from Lot Lines



A result similar to "A" in the above figures could be achieved by establishing the maximum building height as 20 feet plus 1.5 feet for each foot of building setback in addition to the minimum yard requirement, up to a maximum of 35 feet.

5. Control Bulk – Reduce Maximum Building Height

Currently, Concord's Zoning Bylaw restricts building height to 35 feet in residential zoning districts, with height measured to "either the highest point of the exterior in the case of a flat roof or to the mean average finished grade between the plate and the ridge in the case of a pitched roof." Defining height in this manner is a good way to promote the use of sloping roofs; however, the 35-foot height limit may be excessive in neighborhoods with smaller lots.

As part of a set of zoning changes designed to address the mansionization issue, the city of Newton adopted a definition of building height similar to Concord's and reduced the maximum height from 36 feet to 30 feet. At the same time, Newton also reduced the maximum number of stories allowed in residential districts from 3 to 2-1/2 stories, allowing a full third story only by special permit. (Part of the motivation for this change was to discourage three-story residences where the first story was primarily used for a garage.)

6. Control Visual Impact – Building Width Along Street Line

The strategies described to this point have focused on controlling the intensity and bulk aspects of mansionization. A separate issue relates to the impact of "monster homes" on the character of the neighborhood as seen from the street. In this regard, what matters is not the actual size of the home, but the perceived scale in relation to surrounding homes.

To address this aspect of the mansionization question, the town could establish design standards for residences to ensure a visual scale that is consistent with the neighboring properties. For example, the following table presents a hypothetical policy of limiting building frontage to 40 percent of the minimum required frontage for the district:

Table 5: Building Width Restriction

District	Minimum Required Frontage	Maximum Building Width (example)	Area of Square Footprint (1 story)	Maximum Floor Area (3 stories)
Residence AA	200 ft.	80 ft.	6,400 sq. ft.	19,200 sq. ft.
Residence A	150 ft.	60 ft.	3,600 sq. ft.	10,800 sq. ft.
Residence B	125 ft.	50 ft.	2,500 sq. ft.	7,500 sq. ft.
Residence C	80 ft.	32 ft.	1,024 sq. ft.	3,072 sq. ft.

The above standards would have the same effect as increasing side yard requirements to 60 feet in the Residence AA district, 45 feet in the Residence A district, 37.5 feet in the Residence B district, and 24 feet in the Residence C district, but would permit more flexibility in the placement of the building on the lot.

7. Site Plan Review

In addition to setting quantitative standards for residential development, the town can require that dwellings over a specified size submit a site plan for review by the Planning Board. This requirement should be accompanied by review criteria incorporating specific qualitative standards for reviewing proposed developments.

For example, the town of Lincoln now requires site plan review for all new development in residential districts, and for additions and renovations to residential structures where the total floor area, including accessory structures, will exceed either (1) the greater of 4,000 square feet or 8% of the lot area, or (2) 6,500 square feet. The standards for review of site plans include the following, which are somewhat more specific than Concord's criteria:

(a) **Preservation of Landscape.** The landscape shall be preserved in its natural state insofar as practicable by minimizing any grade changes and vegetation and soil removal.

(b) **Relation of Buildings to Environment.** Proposed development shall relate harmoniously to the terrain and to the use, scale, and proportions of existing and proposed buildings in the vicinity and shall provide a solar and wind orientation which encourages energy conservation.

(c) **Building Design and Landscaping.** Proposed development shall be in harmony with the prevailing character and scale of the buildings in the neighborhood and the Town through the use of appropriate scale, massing, building materials, screening, lighting and other architectural techniques. Variation in detail, form and siting shall be used to provide visual interest and avoid monotony. Proposed buildings shall relate harmoniously to one another and the surrounding neighborhoods.

Requiring site plan review will not prevent inappropriate development, but is a tool to help shape development and to ensure that buildings meet the requirements of the zoning bylaw.

Summary

This memorandum has presented seven potential strategies for managing the problem of mansionization, including the related issues of teardowns of existing residences and the resulting loss of neighborhood character. It is probable that a combination of several strategies will be most effective in managing residential development, particularly in Concord's older neighborhoods. A possible set of strategies might include:

1. Establish floor area ratios *or* lot coverage ratios for the residence districts; *and*

2. Relate maximum building height to distance from lot lines *or* reduce maximum building heights in some zoning districts; *and*

3. Require site plan review for residential uses over a specified size.